

CLAIMS

1. A mold apparatus for injection molding a disk substrate, comprising a cavity into which a molten resin is injected through a sprue and a recessed form gate, and a signal transfer stamper disposed on the fixed die side of said cavity, said mold apparatus comprising a projected portion for molding said recessed form gate provided at the tip of said sprue, a recessed portion for molding said recessed form gate provided oppositely to said projected portion at the tip of a recessed form gate cutter disposed on the movable die side, and a center hole molding portion provided at the outer circumference of said sprue.
- 15 2. A mold apparatus for injection molding a disk substrate as set forth in claim 1, wherein said center hole molding portion comprises a first R surface molding portion or a first C surface molding portion for molding a first R surface or a first C surface at an edge on the signal transfer surface side of a center hole of said disk substrate injection molded in said cavity.
- 20 3. A mold apparatus for injection molding a disk substrate as set forth in claim 1, wherein said center hole molding portion comprises a straight molding portion for molding a straight portion with a hole diameter equal

in direction with the axial direction on the side opposite to the signal transfer surface side of said center hole of said disk substrate injection molded in said cavity, and a taper molding portion for molding a
5 tapered portion with a hole diameter gradually enlarged toward the signal transfer surface side between said straight portion of said center hole of said disk substrate injection molded in said cavity and said signal transfer surface.

10 4. A mold apparatus for injection molding a disk substrate as set forth in claim 1, wherein the advance amount of said recessed form gate cutter is not less than the thickness of said recessed form gate and is not more than the recessed form gate thickness plus 0.5 mm.

15 5. A mold apparatus for injection molding a disk substrate as set forth in claim 3, wherein the position of cutting said recessed form gate by said recessed form gate cutter is set at a position equal to the hole diameter of said straight portion of said center hole.

20 6. A mold apparatus for injection molding a disk substrate as set forth in claim 5, wherein said recessed form gate cutter comprises a second R surface molding portion or a second C surface molding portion for molding a second R surface or a second C surface at the edge on
25 the side opposite to the signal transfer surface side of

said center hole, at the tip of an outer circumferential portion of said recessed portion.

7. A mold apparatus for injection molding a disk substrate as set forth in claim 3, wherein the position 5 of cutting said recessed form gate by said recessed form gate cutter is set at a first position equal to the hole diameter of said straight portion of said center hole, and at a second position disposed on the inside of said first position and smaller in diameter than said first 10 position.

8. A mold apparatus for injection molding a disk substrate as set forth in claim 7, wherein said recessed form gate cutter comprises a second R surface molding portion or a second C surface molding portion for molding 15 a second R surface or a second C surface at the edge on the side opposite to the signal transfer surface side of said center hole, at the tip of an outer circumferential surface of said recessed portion.

9. A disk substrate taking-out apparatus
20 comprising:

a mold apparatus comprising a cavity provided between a fixed die and a movable die, a signal transfer stamper disposed on said fixed die side of said cavity, and a recessed form gate cutter disposed on said movable 25 die side, wherein a molten resin is injected into said

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cavity through a sprue and a recessed form gate to injection molding a disk substrate, and gate cutting is conducted from said movable die side by said recessed form gate cutter; and

5 a robot for taking out from said movable die said disk substrate released from said fixed die together with said movable die by the opening of said movable die after injection molding, said robot comprising a means for discharging a sprue and gate remaining resin to said
10 movable die side relative to said disk substrate.

10. A disk substrate taking-out apparatus as set forth in claim 9, wherein said discharging means is provided with an air jet nozzle.